**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_**

**Directions:** *Read each problem carefully. Identify the genotypes of the parents involved in the cross.  Show the Punnett square for the cross and give the ratio of both genotypes and phenotypes of the offspring.*

Before you begin….define each of these terms to refresh your memory!

       Homozygous

       Heterozygous

       Phenotype

       Genotype

       Dominant

       Recessive

1.    In rabbits, black fur is dominant over white fur.  Show the cross of a heterozygous black male with a homozygous white female.

Parents: Punnett square:

|  |  |
| --- | --- |
|  |  |
|  |  |

  Genotype ratio:

Phenotype ratio:

2.    Tall is dominant over short in pea plants.  Show the cross of a homozygous short plant is crossed with a homozygous tall plant.

3.    In fruit flies, red eyes are dominant over white eyes.  Show a cross between two white-eye fruit flies.

4.    Wrinkled seeds are recessive to smooth seeds.  Show a plant that always produces wrinkled seeds crossed with a heterozygous smooth seeds producing plant.

5.    Continued from #4… Show a heterozygous smooth plant crossed with another heterozygous smooth seed producing plant.

6.    Blue eyes are dominant to red eyes in rabbits.  Show a heterozygous blue-eyed rabbit crossed with homozygous blue-eyed rabbit.

CHALLENGE:

In humans, free ear lobes are dominant to attached ear lobes.  Two parents that are both heterozygous free are expecting a child.  What are the chances that the child will be a **male** with **attached ear lobes?**

The couple ultimately wants to have two children. What is the probability that they will have one **male** with **attached earlobes** and another **male** with **free ear lobes?**